

Application No.: 10/075,591

Docket No.: 500.41141X00

REMARKS

Reconsideration and allowance of this application, as amended, is respectfully requested.

This Amendment is in response to the Office Action dated December 5, 2003. Appreciation is expressed to the Examiner for the allowance of claims 1-21.

By the present amendment, page 15 of the specification has been amended to correct the minor informality noted in paragraph 1 of the Office Action. Also the typographical errors in Figs. 2 and 4 have been corrected, and Figs. 16-18 have been labeled as prior art, as required in the Office Action. Therefore, reconsideration and removal of the objection to the specification and drawings set forth in paragraphs 1-3 on page 2 of the Office Action is respectfully requested.

Also by the present Amendment, claim 13 has been amended to correct the informality noted in paragraph 5 of the Office action. Therefore, reconsideration and removal of this objection to claim 13 is also respectfully requested.

In addition to the above amendments, claim 22 has been amended to clarify the invention. Also, new independent claim 23 and dependent claims 24 and 25 have been added to define the invention from a different perspective.

Briefly, the present invention is directed to providing an improvement over prior art image display devices such as those shown in prior art Figs. 16-18. As discussed on pages 1-5 of the specification (particularly with regard to page 5, line 8 et seq.), such prior art image display devices have suffered from problems in terms of providing multilevel illumination. Also, Applicants' studies have shown that significant pixel to pixel characteristic variation has taken place in such prior art devices. Accordingly, the present invention is directed to providing an image display

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which will work successfully for multilevel illumination and minimum display characteristic variation between pixels.

One embodiment for achieving this is discussed, for example, with regard to Figs. 1-8 of the drawing (noting that reference to these figures is solely for purposes of example, and not intended to limit the claimed invention only to the specifics of this embodiment). Referring to Fig. 1, each of the pixels 5 include an organic light emitting diode (OLED) 4 which is driven by a pixel driving voltage generation circuit 20 which provides a pixel drive voltage in conjunction with a pixel drive voltage input circuit 22 to input the pixel drive voltage to the pixel. More specifically, the OLED is coupled to receive the pixel drive voltage through a first switching TFT 1, a capacitance 2 and an inverter circuit 3. As discussed on page 12, line 11 et seq., the pixel drive voltage generator can generate triangular wave pixel drive voltages in accordance with one embodiment of the present invention. As discussed on page 35, line 12 et seq., this and other embodiments of the present invention provide an image display device which minimal pixel to pixel characteristic variation and which can be successfully used to provide multiple illumination levels.

Reconsideration and allowance of amended independent claim 22 is respectfully requested. By the present Amendment, claim 22 has been amended to clarify the invention by defining a pixel voltage drive generation means to generate a pixel drive voltage (which can be read, for example, on the pixel drive voltage generation circuit 20 of Fig. 1) and a voltage supplying means to supply the pixel drive voltage to the memory means (noting that this voltage supply means can be read on the gate drive circuit 22 of Fig. 1). Referring to page 14, line 24 through page 16, line 9, it can be seen that amended claim 22 clearly reads on the illustrated

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arrangement of Figs. 1 and 5 in which a voltage generated by a pixel driving circuit (e.g., circuit 20) is provided to a memory means in the pixel, for storing the display signal voltage entered from the signal line, in conjunction with the use of a voltage supplying means (e.g., circuit 22) to provide the pixel drive voltage to the memory means.

Although the cited reference to Ting (USP 6,486,606) is of general interest in the present matter, it is respectfully submitted that the specific features of claim 22 are neither taught nor suggested by the Ting reference. More specifically, Ting discloses in Fig. 2, and described on column 3, lines 19-50, that OLED element D in a TFT-EL display is driven by a signal charged in a capacitor C. Thus, the lighting period for the OLED "D" is determined in accordance with the signal which is written into the memory capacitor C. However, the Ting reference fails to disclose the claimed relationship between a pixel drive voltage generation means to generate a pixel drive voltage, and a voltage supplying means for supplying the pixel drive voltage to the memory means, particularly within the overall combination defined by claim 22. Accordingly, it is respectfully submitted that the amended claim 22 clearly defines over the cited reference to Ting, and reconsideration and allowance of claim 22 over Ting is respectfully requested.

Also, reconsideration and allowance of newly submitted independent claim 23 and dependent claims 24 and 25 is also respectfully requested. New independent claim 23 defines similar features to claim 23, but sets these features forth in terms of structural language rather than in terms of means plus function format. As such, claim 23, like claim 22, defines a pixel drive voltage generation circuit to generate a pixel drive voltage to be supplied to the memory and a voltage supplying circuit to

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supply this voltage generated by the pixel drive voltage generating circuit to the memory. As such, it is respectfully submitted that claim 23 also clearly defines over the Ting reference for the reasons discussed above with regard to claim 22, particularly when the above noted elements are considered in combination with the other elements defined in the claim.

With regard to dependent claims 24 and 25, these claims, dependent on claims 22 and 23, respectively, specifically define that the pixel drive voltage generating means or circuit generates a triangular wave pixel drive voltage (such as disclosed on page 12, line 11 et seq.). As such, these claims serve to even further define over Ting which completely fails to teach or suggest such a claimed feature, particularly in combination with the elements set forth in the respective parent independent claims 22 and 23. Therefore, consideration and allowance of these newly submitted dependent claims 24 and 25 over Ting is also respectfully requested.

If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of

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this paper, including extension of time fees, to the Antonelli, Terry, Stout & Kraus, LLP Deposit Account No. 01-2135 (Docket No. 500.41141X00), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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APPENDIX

*Approve
6/18/04
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